

1. A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:  
positioning a substrate within a chemical vapor deposition reactor; and  
simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium within the reactor, and c) flowing at least one gaseous oxidizer to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizer comprising H<sub>2</sub>O.

2. The method of claim 1 comprising flowing another inorganic oxidizer to the reactor during the deposit.

3. The method of claim 1 wherein the conditions comprise receipt of the substrate by a susceptor, the susceptor having a temperature of less than or equal to 550°C.

4. The method of claim 1 wherein the deposited layer is substantially homogeneous.

5. The method of claim 1 wherein the deposited layer is not substantially homogeneous.

6. A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium within the reactor, and c) flowing at least one gaseous oxidizer to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizer comprising H<sub>2</sub>O<sub>2</sub>.

7. The method of claim 6 comprising flowing another inorganic oxidizer to the reactor during the deposit.

8. The method of claim 6 wherein the conditions comprise receipt of the substrate by a susceptor, the susceptor having a temperature of less than or equal to 550°C.

9. The method of claim 6 wherein the deposited layer is substantially homogeneous.

10. The method of claim 6 wherein the deposited layer is not substantially homogeneous.

11. A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizers comprising at least H<sub>2</sub>O and at least another oxidizer selected from the group consisting of O<sub>2</sub>, O<sub>3</sub>, NO<sub>x</sub>, N<sub>2</sub>O, and H<sub>2</sub>O<sub>2</sub>, where "x" is at least 1.

12. The method of claim 11 wherein the another oxidizer comprises O<sub>2</sub>.

13. The method of claim 11 wherein the another oxidizer comprises O<sub>3</sub>.

14. The method of claim 11 wherein the another oxidizer comprises NO<sub>x</sub>, where "x" is at least 1.

15. The method of claim 11 wherein the another oxidizer comprises N<sub>2</sub>O.

16. The method of claim 11 wherein the another oxidizer comprises H<sub>2</sub>O<sub>2</sub>.

17. The method of claim 11 the oxidizers comprise at least two of the another oxidizers.

18. (Amended) A chemical vapor deposition method of forming a barium strontium titanate comprising dielectric layer, comprising:

positioning a substrate within a chemical vapor deposition reactor; and

simultaneously a) providing gaseous barium and strontium within the reactor by flowing at least one metal organic precursor to the reactor, one or more of the at least one metal organic precursors comprising a  $\beta$ -diketonate ligand selected from the group consisting of thd, methd, and dmp, b) providing gaseous titanium within the reactor, and c) flowing gaseous oxidizers to the reactor under conditions effective to deposit a barium strontium titanate comprising dielectric layer on the substrate, the oxidizers comprising at least  $H_2O_2$  and at least another oxidizer selected from the group consisting of  $O_2$ ,  $O_3$ ,  $NO_x$ , and  $N_2O$ , where "x" is at least 1.

19. The method of claim 18 wherein the another oxidizer comprises  $O_2$ .

20. The method of claim 18 wherein the another oxidizer comprises  $O_3$ .

21. The method of claim 18 wherein the another oxidizer comprises  $NO_x$ , where "x" is at least 1.

22. The method of claim 18 wherein the another oxidizer comprises  $N_2O$ .

23. (Cancelled)

24. The method of claim 18 the oxidizers comprise at least two of the another oxidizers.

25. The method of claim 1 wherein the at least one metal organic precursor comprises a member selected from the group consisting of Ba(thd)<sub>2</sub>, Sr (thd)<sub>2</sub>, Ba(methd)<sub>2</sub>, Sr(methd)<sub>2</sub>, Ba(dpm)<sub>2</sub>, and Sr(dpm)<sub>2</sub>.

26. The method of claim 1 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of Ti(dmae)<sub>4</sub>, Ti(thd)<sub>2</sub> (O-i-Pr)<sub>2</sub>, TiO(dpm)<sub>2</sub>, Ti(t-BuO)<sub>2</sub>(dpm)<sub>2</sub>, and Ti(OCH<sub>3</sub>)<sub>2</sub>(dpm)<sub>2</sub>.

27. The method of claim 6 wherein the at least one metal organic precursor comprises a member selected from the group consisting of Ba(thd)<sub>2</sub>, Sr (thd)<sub>2</sub>, Ba(methd)<sub>2</sub>, Sr(methd)<sub>2</sub>, Ba(dpm)<sub>2</sub>, and Sr(dpm)<sub>2</sub>.

28. The method of claim 6 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of Ti(dmae)<sub>4</sub>, Ti(thd)<sub>2</sub> (O-i-Pr)<sub>2</sub>, TiO(dpm)<sub>2</sub>, Ti(t-BuO)<sub>2</sub>(dpm)<sub>2</sub>, and Ti(OCH<sub>3</sub>)<sub>2</sub>(dpm)<sub>2</sub>.

29. The method of claim 11 wherein the at least one metal organic precursor comprises a member selected from the group consisting of Ba(thd)<sub>2</sub>, Sr (thd)<sub>2</sub>, Ba(methd)<sub>2</sub>, Sr(methd)<sub>2</sub>, Ba(dpm)<sub>2</sub>, and Sr(dpm)<sub>2</sub>.

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30. The method of claim 11 wherein the providing gaseous titanium within the reactor comprises flowing at least one member of the group consisting of  $\text{Ti(dmae)}_4$ ,  $\text{Ti(thd)}_2(\text{O-i-Pr})_2$ ,  $\text{TiO(dpm)}_2$ ,  $\text{Ti(t-BuO)}_2(\text{dpm})_2$ , and  $\text{Ti(OCH}_3)_2(\text{dpm})_2$ .

31. The method of claim 18 wherein the conditions comprise receipt of the substrate by a susceptor, the susceptor having a temperature from 440°C to 700°C.

